# Appendix I-A

# Analytes Evaluated, Parameter Values, and Numerical Results

# Appendix I-A
# Analytes Evaluated, Parameter Values, and Numerical Results

The tables of data for this appendix are Microsoft Excel 5.0 files on diskette. Table A.1 (diskette file con-apa1.xls) provides a list of all radionuclides and chemicals for which monitoring has been reported in the reviewed literature of samples from the Columbia River and groundwater in the Hanford Site 100, 300, 1100 Areas, and other areas within 150 meters (500 feet) of the Columbia River. For those contaminants which had a detected level, the highest concentration reported is listed. A total of 568 analytes are listed. The 73 analytes for which detected levels were reported are listed in Table 2.1.

Table A.2 (diskette file con-apa2.xls) provides a list of all radionuclides and chemicals for which monitoring has been reported in the reviewed literature of samples from soil and sediment in the Hanford Site 100, 300, and 1100 Areas. For those contaminants which had a detected level, the highest concentration reported is listed. A total of 560 analytes are listed. The 86 analytes for which detected levels were reported are listed in Table 2.2.

The data depicted in Tables A.1 and A.2 are from a variety of documents containing different measurements. Whereas the measurements can at times appear contradictory, they reflect the data as they appear in the documents reviewed.

The equations detailed in Section 2.3 require parameters for each radionuclide and chemical evaluated. The parameters used to screen samples from the Columbia River and groundwater within 150 meters (500 feet) of the Columbia River are provided in Table A.3 (diskette file con-apa3.xls). The parameters used to screen samples of soil and sediment are provided in Table A.4 (diskette file con-apa4.xls). The parameters used to screen samples of groundwater farther than 150 meters (500) feet from the Columbia River are provided in Table A.5 (diskette file con-apa5.xls).

This appendix also provides the numerical results of applying the screening equations in Section 2.5 to the detected analytes described in Sections 2.3 and 2.8. Table A.3 (diskette file con-apa3.xls) presents the numerical results of screening samples from the Columbia River and groundwater within 150 meters (500 feet) of the Columbia River. Table A.4 (diskette file con-apa4.xls) presents the numerical results of screening soil and sediment samples. Table A.5 (diskette file con-apa5.xls) presents the numerical results of screening samples from groundwater farther than 150 meters (500 feet) from the Columbia River. Application of the equations and assumptions defined in Section 2.5 results in a series of complementary, but not necessarily intercomparable, screening values for each contaminant. The varying numbers of assumptions and associated varying degrees of conservatism require that each of the screenings be evaluated separately. The results of the combined screenings, however, then define the overall list of contaminants to be analyzed in the screening assessment.

The following abbreviations are used in the Microsoft Excel tables in this appendix. All units are as reported in the reviewed literature. The column headings, such as 100-KR-4, refer to sampling locations at operable units, described in Section 2.1.

| | | |
|---|---|---|
| aCi/L | = | attocuries per liter (one one-millionth of a pCi/L) |
| AWQC | = | ambient water quality criteria |
| Bkg | = | background denotes that the highest concentration found was at background level so eliminated from consideration |
| CAS# | = | Chemical Abstract Service number, a unique numerical identifier for chemicals |
| EPA-10 | = | eliminated from the human risk assessment based on the guidance in EPA Region 10 Supplemental Risk Assessment Guidance for Superfund (EPA 1991). |
| GW | = | groundwater |
| HEIS | = | Hanford Environmental Information System database |
| Kd | = | sediment/water equilibrium partitioning coefficient |
| Koc | = | carbon matter partitioning coefficient |
| Kow | = | octanol/water partitioning coefficient |
| L/kg | = | liters per kilogram |
| $LC_{50}$ | = | lowest concentration reported to be lethal to 50% of the organisms 100 days after exposure (EPA 1985) |
| $LD_{50}$ | = | near limit of detection |
| µg/kg | = | micrograms per kilogram |
| µg/L | = | micrograms per liter |
| MeV | = | million electron volts |
| mg/kg | = | milligrams per kilogram |
| mg/L | = | milligrams per liter |
| ml/g | = | milliliters per gram |
| ND | = | not detected in sample; not all data compilers used this convention; some analytes show no entry where an ND is appropriate |
| pCi/g | = | picocuries per gram |
| pCi/kg | = | picocuries per kilogram |
| pCi/L | = | picocuries per liter |
| ppb | = | parts per billion |
| SD | = | sediment |
| SL | = | soil |
| Suspect | = | noted in the source database as being unreliable (see Section 3.4) |
| SW | = | surface water (Columbia River water) |
| SW-LD | = | reported sample in surface water very near the limit of detection and, therefore, unreliable |
| TLM | = | lowest concentration below which no effects on aquatic life are observed (EPA 1985) |
| w/Pu239 | = | concentration included in the value reported for plutonium-239 |
| w/U233 | = | concentration included in the value reported for uranium-233 |
| * | = | laboratory results marked as suspect data (see Section 2.4.5). |